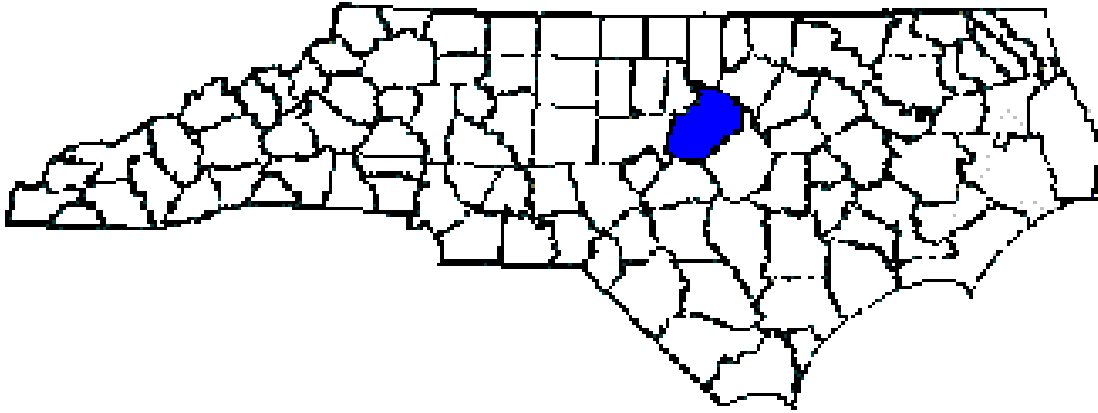


# ANNUAL REPORT FOR 2011



**Terrible Creek Mitigation Site**  
**Wake County**  
**TIP No. B-4302**  
**DWQ Project #: 20081433**



Prepared By:  
Roadside Environmental Unit & Natural Environment Unit  
North Carolina Department of Transportation  
June 2011

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## **SUMMARY**

The Terrible Creek Mitigation Site is located in Wake County. The site was planted in November 2010 and was designed as wetland mitigation for temporary impacts associated with bridge project B-4302.

The mitigation encompasses approximately 0.67 acres total of wetland restoration. NCDOT will restore 0.67 acres of wetlands by removal of fill material used for the temporary onsite detour in the existing wetlands. The restoration effort involved re-vegetating the area that was temporarily impacted. The area that was impacted is being monitored to ensure that it re-attains wetland jurisdictional status. The restoration area was re-vegetated with bottomland hardwood species. No hydrologic monitoring is required for this project; however, vegetation monitoring is required for three years.

After the first year of monitoring, the Terrible Creek Mitigation Site shows by visual observation that the restoration area is re-attaining wetland jurisdictional status and tree species planted in the wetland restoration area are surviving.

NCDOT proposes to continue vegetation monitoring at the Terrible Creek Mitigation Site.

## **1.0 INTRODUCTION**

### **1.1 Project Description**

The Terrible Creek Mitigation Site is located at Bridge No. 336 on Sunset Lake Road over Terrible Creek (Figure 1). The site consists of approximately 0.67 acres of mitigation for temporary wetland impacts associated with project B-4302.

### **1.2 Purpose**

In order for a mitigation site to be considered successful, the site must meet vegetation success criteria. This report details the vegetation monitoring in 2011 at the Terrible Creek Mitigation Site. Hydrologic monitoring was not required for the site.

### **1.3 Project History**

November 2010

Site Planted

June 2011

Vegetation Monitoring (Year 1)

### **1.4 Debit Ledger**

The entire Terrible Creek mitigation site was used for the B-4302 project to compensate for unavoidable wetland impacts.

## **2.0 VEGETATION: TERRIBLE CREEK MITIGATION SITE (YEAR 1 MONITORING)**

### **2.1 Success Criteria**

Due to the possibility that compaction and/or other site alterations might prevent the temporary wetland impact area from re-attaining jurisdictional wetland status, NCDOT shall provide an update on the wetland areas at these temporary impact sites no later than three years after project completion. This update will consist of photographs and a brief report on the status of these temporarily impacted areas in re-attaining wetland jurisdictional status. If at the end of three years the wetland areas temporarily impacted by this project have not re-attained jurisdictional wetland status, NCDWQ shall determine if compensatory mitigation will be required.

### **2.2 Description of Species**

The following tree species were planted in the Wetland Restoration area:

*Platanus occidentalis*, American Sycamore

*Liriodendron tulipifera*, Yellow Poplar

*Quercus nigra*, Water Oak

*Fraxinus pennsylvanica*, Green Ash

### **2.3 Results of Vegetation Monitoring**

The restoration area is re-attaining wetland jurisdictional status and the planted species are surviving. Site 1 on the south side of Terrible Creek had limited planted seedlings surviving. Additional planting will take place in the winter of 2012 to increase seedling survival.

**Site Notes:** Other species noted: *Juncus* sp., sedge, *Sagittaria* sp., smartweed, cattail, goldenrod, ragweed, and various other grasses.

### **2.4 Conclusions**

There were approximately 0.67 acres of wetland restoration on site. There were no vegetation plots established on the site. By visual observation, the Terrible Creek Mitigation Site shows that the planted species are surviving in the planted areas, except on the south side of Site 1 and that the restoration area is re-attaining wetland jurisdictional status.

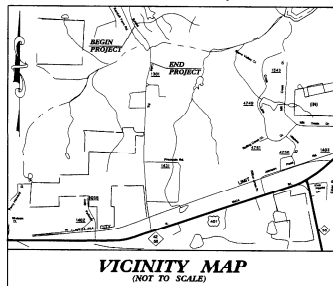
## **3.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS**

NCDOT proposes to complete additional supplemental planting at Site 1 and to continue vegetation monitoring at the Terrible Creek Mitigation Site for 2012.

***TIP PROJECT: B-4302***

**CONTRACT:**

See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols



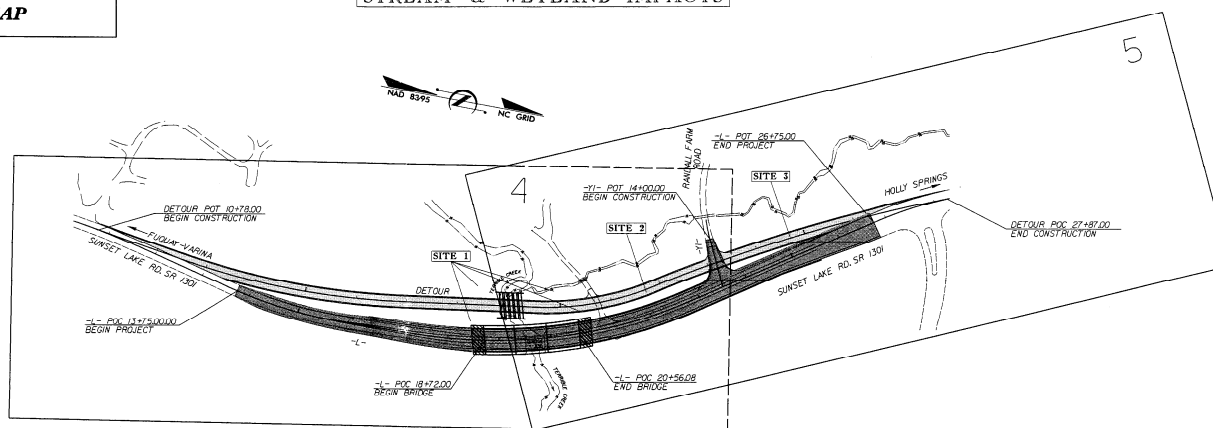
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**WAKE COUNTY**

**LOCATION: BRIDGE NO. 336 OVER TERRIBLE CREEK  
ON SR 1301 (SUNSET LAKE ROAD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE**

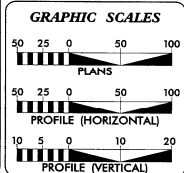
## STREAM & WETLAND IMPACTS

[illegible]Permit Drawing  
Sheet 1 of 12

NCDOT CONTACT : DOUG TAYLOR, PE  
PROJECT ENGINEER - ROADWAY DESIGN

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED  
TO THE LIMITS ESTABLISHED BY METHOD III.

## PRELIMINARY PLANS



### DESIGN DATA

ADT 2008 = 14,100  
ADT 2030 = 28,500  
DHV = 10 %  
D = 60 %  
T = 4% % \*  
V = 50 MPH  
\* (TTST 1% + DUALS 3%)  
FUNCTIONAL = MINOR  
CLASS. COLLECTOR  
\*\* DESIGN EXCEPTION =  
STOPPING SIGHT DISTANCE

### PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4302	=	0.211 MI
LENGTH STRUCTURE TIP PROJECT B-4302	=	0.035 MI
TOTAL LENGTH TIP PROJECT B-4302	=	0.246 MI

Prepared in the Office of:

**MULKEY ENGINEERS & CONSULTANTS**  
FOR THE NORTH CAROLINA DEPT. OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
APRIL 18, 2008

**LETTING DATE:**  
**APRIL 21, 2009**

**TIM S. HAYES, PE**  
**PROJECT ENGINEER**

**JOHNNY R. BANKS**  
PROJECT MANAGER

## HYDRAULICS ENGINEER

PL

**ROADWAY DESIGN  
ENGINEER**

\_\_\_\_\_  
SIGNATURE

**DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA**



ART McMILLAN, P.E.  
STATE HIGHWAY DESIGN ENGINEER

### Figure 1. Site Location Map

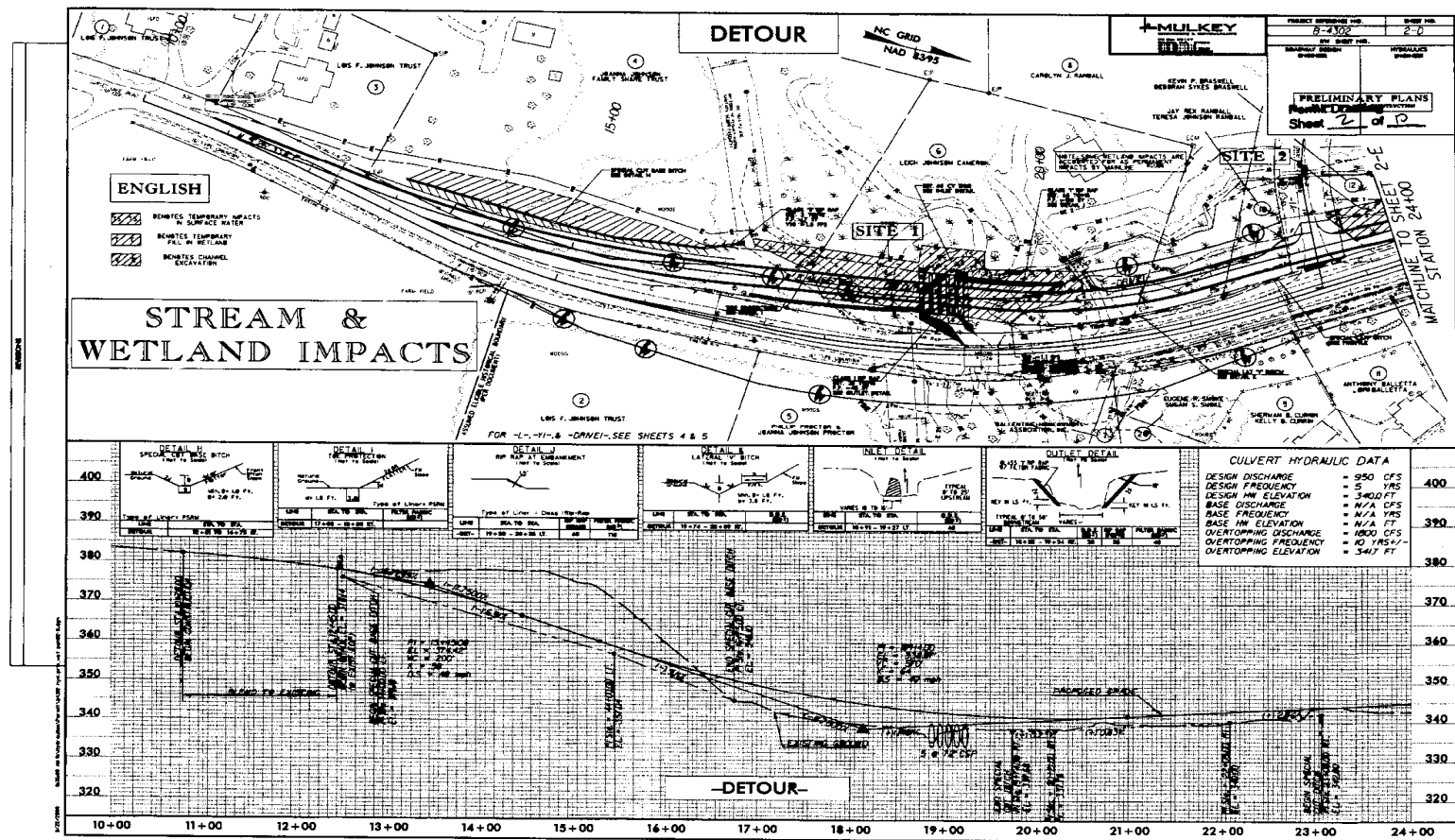


Figure 2. Permit Drawings

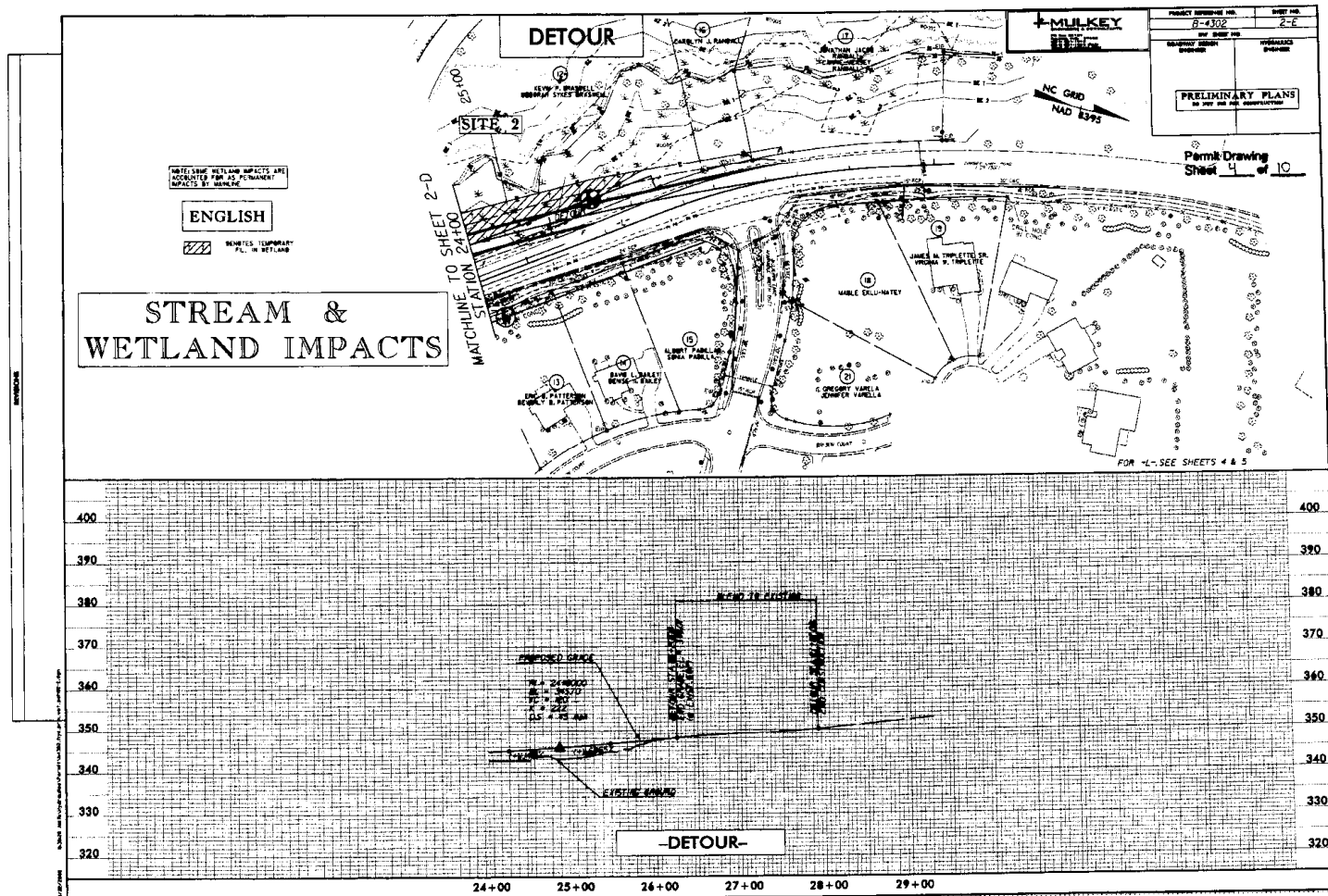


Figure 2. Permit Drawings



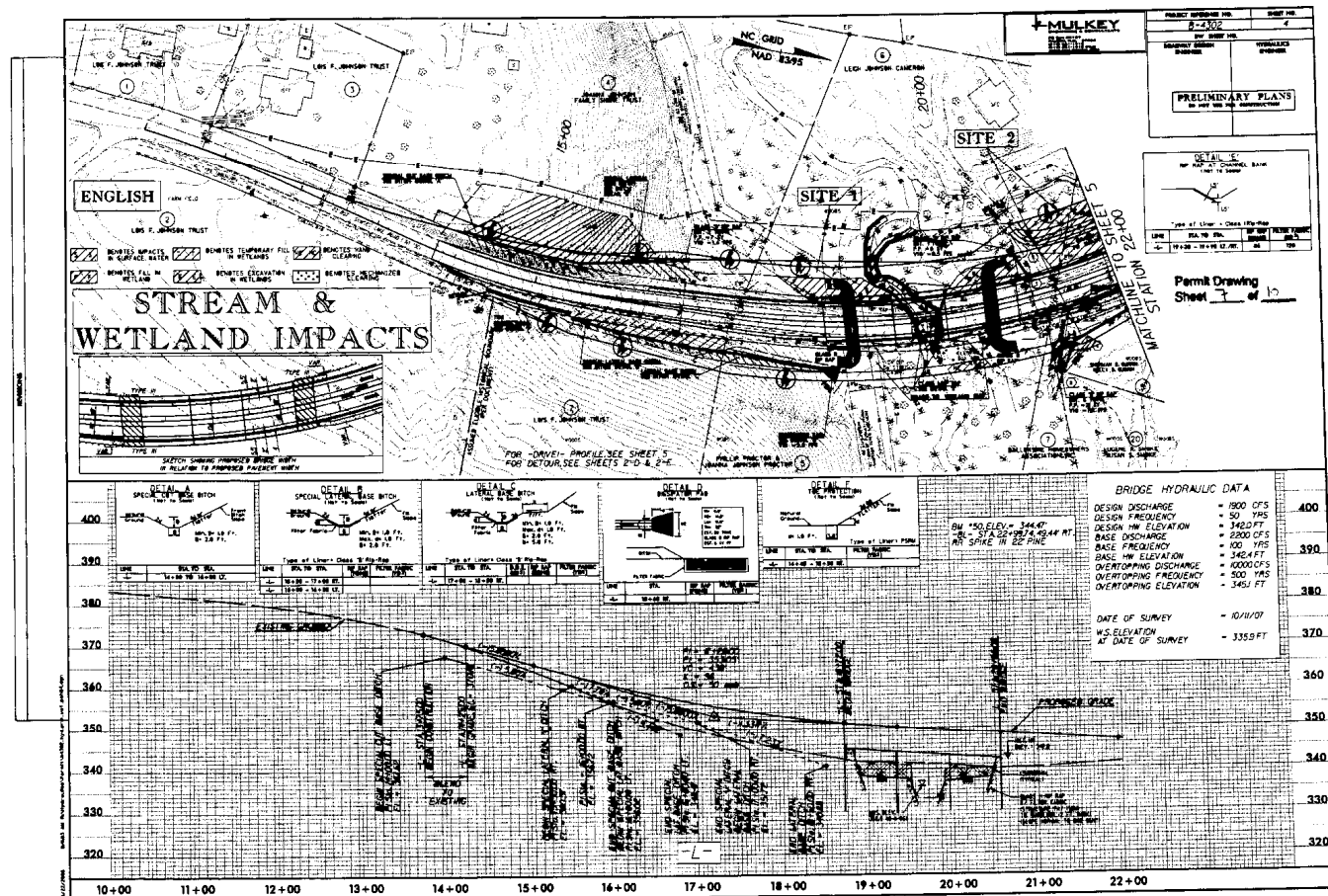


Figure 2. Permit Drawings

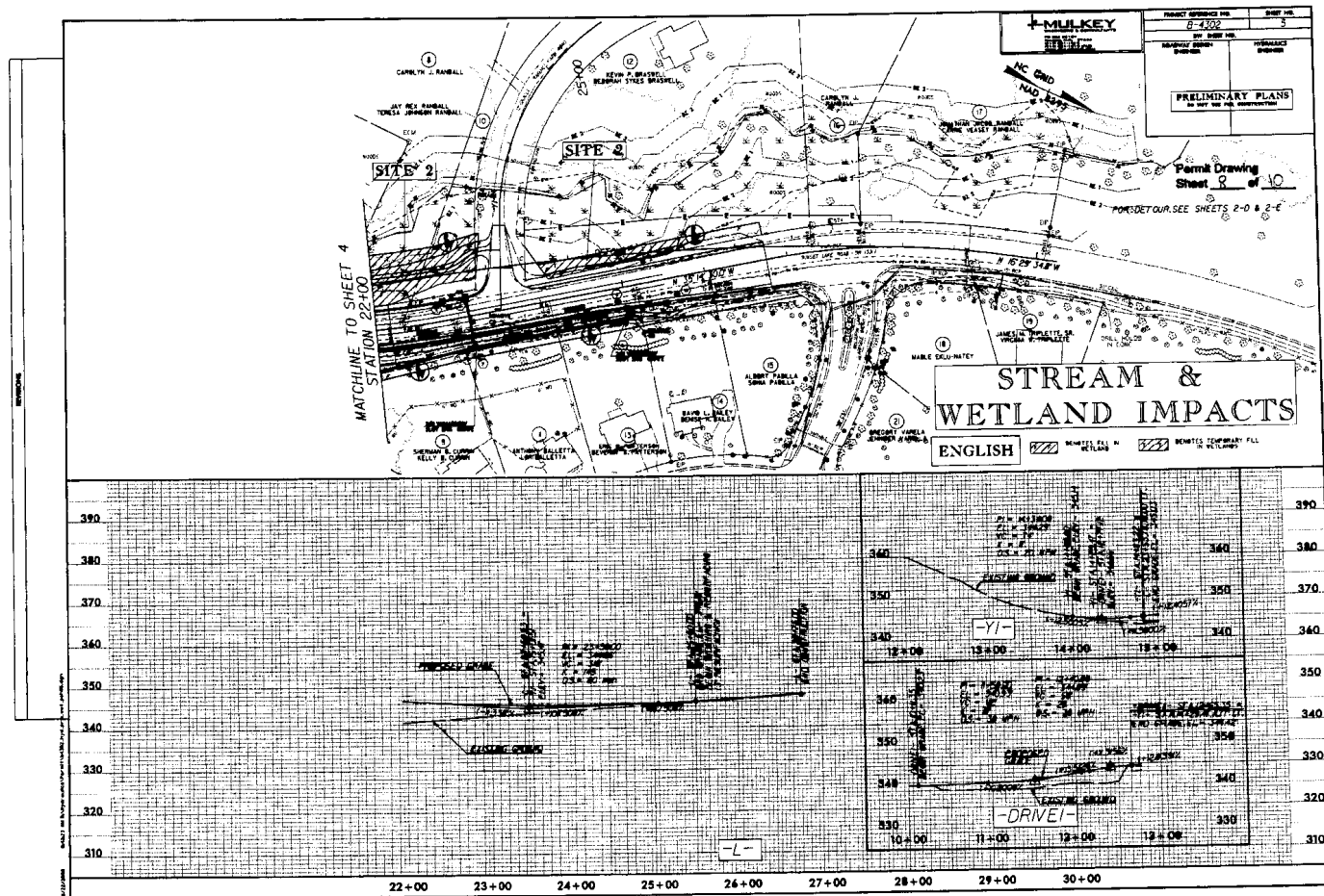


Figure 2. Permit Drawings

**APPENDIX A**

**SITE PHOTOS**



# Terrible Creek



Photo # 1 (Site 1)



Photo # 2 (Site 1)

# Terrible Creek



Photo # 3 (Site 2)

June 2011